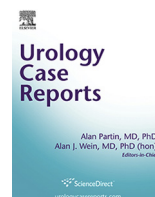


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Oncology

Warty Condylomatous Squamous Cell Carcinoma of the Penis in a 19-Year-Old[☆]Yauhen Tarbunou^{a,b,*}, Cindy L. Davis^{a,b}, Joseph Costa^{a,b}, Christopher Williams^{a,b}^a Division of Urology and Department of Pathology, University of Florida College of Medicine, Jacksonville, FL, USA^b Department of Pathology, University of Florida College of Medicine, Jacksonville, FL, USA

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ABSTRACT

Warty carcinoma of the penis is an unusual neoplasm and a variant of penile squamous cell carcinoma. As with other types of penile cancer, risk factors include human papillomavirus infection, poor personal hygiene, and being uncircumcised. The typical case is an exophytic mass arising from the glans penis, frequently large (4–5 cm), and with invasion into corpus spongiosum. The diagnosis is typically made by tumor biopsy. Treatment depends on the stage of disease and includes partial vs total penectomy, with or without prophylactic or therapeutic bilateral lymphadenectomy. We present an unusual case of penile cancer in a 19-year-old patient.

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Introduction

Warty carcinoma of the penis is an unusual neoplasm and a variant of penile squamous cell carcinoma.¹ The typical case is an exophytic mass arising from the glans penis, frequently large (4–5 cm), and with invasion into corpus spongiosum. Microscopic features representative of warty carcinoma are hyperkeratosis, papillomatosis, parakeratosis, and prominent koilocytosis with nuclear pleomorphism.¹ Clinically, patients complain of a growing mass on the distal penis, ulceration, bleeding, and discharge. The diagnosis is typically made by tumor biopsy. Staging may include urethroscopy and computed tomography (CT) or magnetic resonance imaging (MRI). Treatment depends on the stage of disease and includes partial vs total penectomy, with or without prophylactic or therapeutic bilateral lymphadenectomy.

Case presentation

An otherwise healthy 19-year-old circumcised man with a history of burns to the penis as a toddler presented for evaluation of a penile mass present for approximately 8 months. He denied being sexually active. Evaluation for human immunodeficiency virus infection (enzyme-linked immunosorbent assay) was negative. Physical examination revealed a large fungating penile mass with a discharge. The lesion almost completely replaced the extracorporeal

penis and extended to the base of the penis. There was no palpable inguinal lymphadenopathy, and the remainder of the genitourinary examination was unremarkable. Abdominal and pelvic CT revealed only bilateral inguinal adenopathy. No evidence of distant metastatic disease was noted. MRI of the penis revealed an approximately 4-cm verrucous penile mass that completely replaced the glans penis and abutted the tip of the corporal bodies. Partial penectomy was the initial therapeutic step. After resection, the neourethra and corporal bodies were flush with the skin of the penoscrotal junction.

The surgical pathologic diagnosis was well-differentiated “warty” (condylomatous) squamous cell carcinoma obliterating the glans penis. Grossly, the specimen consisted of an unrecognizable glans penis and a portion of relatively spared penile shaft. The exophytic verrucous lesion obliterating the glans penis had an arborizing papillomatous cut surface (Fig. 1). The urethral ostium was also involved. Microscopically, the lesion was papillomatous with thin fibrovascular cores. Acanthosis, parakeratosis, and koilocytosis were prominent throughout, with infiltrating nests of tumor at the base (Fig. 2).

One year later, the patient was electively scheduled for stage I urethroplasty with buccal mucosal grafting due to stenosis at the urethrocuteaneous meatus. The delay in urethroplasty was due to nonmedical, administrative, and personal factors. Five months later, evaluation of urinary obstructive symptoms revealed a 0.5 × 0.5 cm papillary urethral lesion. Resection of this lesion necessitated simultaneous placement of another buccal mucosal graft. The surgical pathology from this resection revealed only focal condylomatous changes, underlying fibrosis, and chronic

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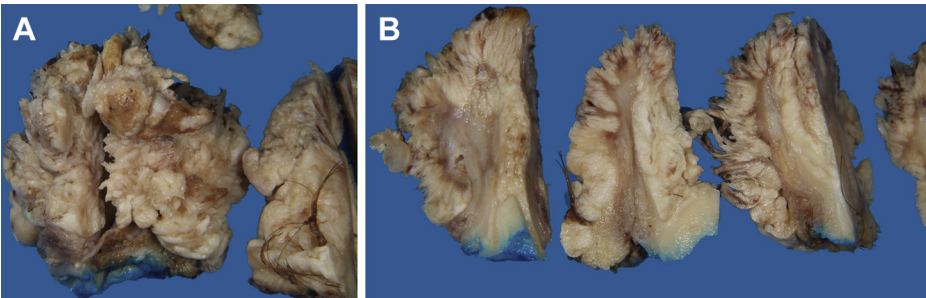


Figure 1. (A) Verrucous lesion obliterating the glans penis. (B) Cut surface shows papillary architecture.

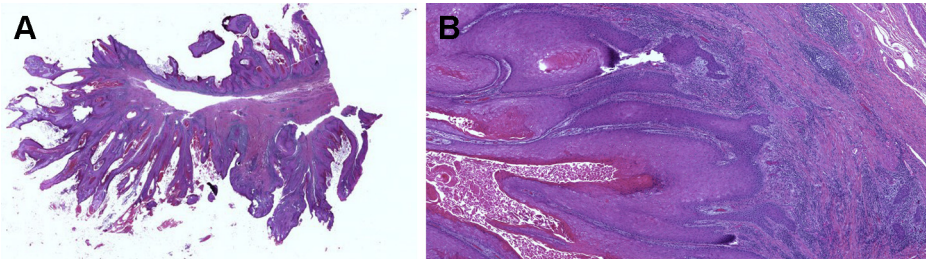


Figure 2. (A) Arborizing papillomatous architecture with thin fibrovascular cores (scanning magnification). (B) Papillomatosis, koilocytosis, and parakeratosis are evident at the surface (left), whereas invasion and reactive stroma are seen at the base of the lesion (right; 10×).

inflammation. Thereafter, the patient was evaluated for elective phalloplasty using a radial forearm flap, but he has failed to complete his preoperative preparation and has been lost to follow up.

Discussion

Carcinoma of the penis is rare in developed countries. The highest incidence is reported in Asia (China, Vietnam, Sri Lanka, Burma, and India), Africa (Uganda), and Latin America (Mexico). The average age at presentation is late 50s-60s. The etiology is typically multifactorial and includes poor hygiene, pre-existing condyloma acuminatum, squamous intraepithelial lesions with warty features, and human papillomavirus infection. Approximately 40% of penile cancers have been shown to be attributable to human papillomavirus types 16 and 18. Type 16 has preferentially been associated with a small subset of penile cancers, including basaloid, mixed warty-basaloid, and pure warty squamous carcinomas.¹ Most penile neoplasms are squamous cell carcinomas, of which there are multiple variants (Table 1). They usually demonstrate 1 of 3 growth patterns: superficial spreading with minimal stromal invasion, vertical growth with deep invasion, or exophytic growth. Warty carcinomas comprise 5%-10% of all penile carcinomas.² The diagnosis of warty carcinoma is

confirmed by histology, which is essential before definitive treatment. Urethroscopy may also be considered. MRI of the penis to identify invasion into the corpora cavernosa or spongiosum is helpful when the depth and extent of tumor remain unclear on physical examination. Abdominal and pelvic CT or MRI may be useful to exclude metastatic disease.

Partial penectomy with a 2-cm proximal resection margin was traditionally recommended for adequate local control of T1-T2 tumors and remains the gold standard. However, penile length sparing by decreasing the margin of resection is now acceptable in select cases. Alternative penile-sparing techniques include Mohs micrographic surgery, laser ablation, and radiation therapy (RT). Mohs surgery does not offer much benefit over surgical excision with intraoperative frozen section because of high risk of recurrence,⁵ whereas laser ablation offers comparable extirpative results with additional functional benefits. Using the neodymium:yttrium-aluminum-garnet laser in conjunction with tumor base biopsies to ensure negative margins, Frimberger³ reported a mere 7% recurrence rate at 47 months for 29 patients. Laser ablation has also been associated with a 75% rate of resumption of sexual activity and a 78% rate of patient satisfaction. In select cases, RT may be considered, but technical challenges exist related to possible need for circumcision and penile immobilization. Also, with 5-year local control rates of only 44%-70%, RT appears inferior to surgical or laser extirpation. Because penile squamous cell carcinoma is relatively radioresistant, the efficacy of RT is limited. Thus, if chosen, high doses of RT are required, which predispose to local complications such as desquamation, urethral stenosis, soft-tissue necrosis, edema, and secondary infection.^{3,4} Management of stage T3-T4 disease is more difficult because most patients will have extensive regional lymph node metastases requiring inguinal lymphadenectomy in addition to partial or total penectomy. For patients with unresectable bulky inguinal adenopathy, neoadjuvant chemotherapy or chemoradiotherapy may be considered. Response rates to neoadjuvant chemotherapy in this setting range from 31% to 50%, but long-term survival rates are generally poor. Fortunately, there have been no reported cases of metastasis from

Table 1
Variants of penile squamous cell carcinoma

Variants of penile squamous carcinoma
Squamous cell carcinoma, not other specified
Basaloid carcinoma
Warty (condylomatous) carcinoma
Papillary carcinoma
Verrucous carcinoma
Pseudohyperplastic carcinoma
Sarcomatoid (spindle cell) carcinoma
Acantholytic carcinoma

verrucous carcinomas. So, such aggressive adjuvant therapy is not indicated.

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